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Cruise Report

R/V ADVANCE II 770907

7-23 Sept. 1977

B. Butman
USGS
Woods Hole, MA

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2 legs : 13 days at sea total

66 man days total 7 ~~sci~~ sci party

50 man days USGS 5 ~~USGS~~ USGS sci party

130 XBT

49 CTD

9 current meter moorings serviced

Ship: R/V ADVANCE II

Area of Operations: South Atlantic Shelf
Mid Atlantic Bight
Georges Bank

<u>Dates:</u>	Leg I	Depart	Wilmington, N.C.	1400	7 Sept. 1977
		Arrive	Woods Hole, MA	0900	13 Sept. 1977
	Leg II	Depart	Woods Hole, MA	1545	15 Sept. 1977
		Arrive	Woods Hole, MA	1100	23 Sept. 1977

Personnel:

Leg I

Bennet	Master	
W. Strahle	Chief Scientist, USGS	(E. Engineer)
J. West	USGS	(Technician)

Leg II

Bennett	Master	
B. Butman	Chief Scientist, USGS	(Oceanographer)
W. Strahle	USGS	(E. Engineer)
J. West	USGS	(Technician)
C. Deadmon	USGS	(Technician)
A. Eliason	Eliason Data Services	
R. Reynolds	EG & G	
M. Noble	USGS	(Physicist)

Objectives:

The objectives of the ADVANCE II cruise were:

1. To recover five instrumented bottom tripod packages and deploy two tripods as part of a continuing study of currents and sediment transport on the east coast continental shelf.
2. Recover 2 current meter moorings, and deploy three current meter moorings as part of a continuing study of currents and sediment transport. Two of the current moorings were deployed for EG & G.
3. Make underway XBT observations of water temperature and structure, and obtain profiles of temperature and conductivity (CTD) along selected transects running across the shelf, and alongshelf. The measurements were designed to determine the position of the shelf-slope water front, to aid in interpretation of tripod and current meter data, to map distribution of 'cold pool' water found on the shelf in summer off the N.J. coast, and to study mixing through the Great South Channel.
4. Recover, replace, and relight as necessary surface marker floats at tripod and current meter locations. The floats serve to mark instrument locations, and deter fishing activity.

Narrative: Leg I

7 Sept 1400 Depart Wilmington, N.C.

8 Sept 0813 XBT observations
0940 Arrive at South Atlantic Station B (Mooring 134).
1000 Commanded release, but floats did not surface.
1110 Dropped surface marker for dragging purposes.
Floats surfaced.
1300 Divers in water for underwater tripod photography.
1630 Attempted to recover tripod - line parted.
1650 Diver in water to locate tripod and/or line.
1955 Line brought to surface and tripod recovered.
2110 Underway - XBT observations

9 Sept 1011 XBT observation
1200 Anchored near-shore near Savannah to replace bow anchor.
1950 Continue XBT observations

10 Sept 0920 East of Cape Fear. Continue XBT observations

11 Sept 1014 East of Cape Henry. Continue XBT observations

12 Sept 0615 Arrive at mid-Atlantic Sta. B (Mooring 129)
0645 Release fired, but floats did not surface.
0715 Underway to Sta. C
0800 Arrive mid-Atlantic Sta. C (Mooring 131)
0805 Release fired
0845 Tripod on deck
1110 Underway back to Sta. B, after recovering 2 surface markers.
1210 Arrive mid-Atlantic Sta. B (Mooring 129)
1220 Started dragging operation.
1400 Dragging successful - tripod on deck
1430 Underway to Woods Hole
1551 XBT observations commenced
2346 Discontinued XBT observations

13 Sept 0900 Arrive Woods Hole

Narrative: Leg II

15	Sept	1545 1700	Depart Woods Hole XBT and CTD observations
16	Sept		Continue XBT and CTD observations on N.J. shelf. weather calm.
17	Sept	0530 0730	Arrive at NOAA meteorological buoy (EB41), Sta. B. Recover Mooring 133 (current meter). Mooring to north of expected position with respect to surface markers. Replaced marker buoy with new buoy, using existing chain. Deployed Mooring 135 (tripod). Absolutely pouring rain, visibility zero. Surveyed tripod location
		1000	Underway along 60m isobath, XBT and CTD observations.
18	Sept	0700	South of Nantucket. XBT and CTD observations along 60m isobath.
19	Sept	0600	Recover current mooring (USGS Mooring 128). No response to attempts to enable tripod (Mooring 132). Conducted 5 mi. box search pattern, attempting to enable and locate tripod. Finally, enabled release from a position approximately 3 nmi. to NE of mooring site. Tripod determined to be at original location by range.
		1115	Recovered tripod. Ship maneuvering extremely awkward.
			Replaced several surface buoys. Ship handling absolutely atrocious. One buoy hit by stern of ship and chipped propeller blades. On launch, anchor chain of a second buoy fouled in screw. Bridge communication and understanding of operation extremely poor.
		2145	Deployed tripod (Mooring 136). Poor ship handling required several approaches. Camera strobe damaged when tripod was resecured following an aborted deployment pass through surface marker buoy array. End cap of strobe replaced, but cabling may have been damaged.
		2330	Deployed current meter mooring (Mooring 137). Again, poor ship handling slowed operation.
20	Sept	0100	Underway to north side of Georges Bank. XBT and CTD observations. Bridge used incorrect Loran C lines and proceeded on a course 90° to desired heading. Indication of incompetence, total lack of experience, and dangerous dependence on navigational aids.

1300 On station to deploy EG & G current mooring and recover USGS tripod. Sea's too rough to work. 10-15'. Tripod release would not respond to enable command.

21 Sept Hove to to await calm weather. Wind 40 - 60 knots, NE, Seas 10-15'. Moderately uncomfortable. Attempted to enable tripod release from several locations.

22 Sept Still rough seas.

1000 Examined marker buoys closely. Tripod recovery floats on surface, apparently released accidentally in response to previous repeated enable commands

1230 Despite rough weather, recovered tripod with difficulty in maneuvering. Severe chafe in recovery line approx. 6' above tripod. Seas abating.

1400 Deployed EG & G current mooring. Considerable time spent assembling mooring. Difficulty with Loran C navigation.

~1600 At second EG & G current meter location. Deployed two surface marker buoys. Deployed current meter mooring.

1900 Underway from mooring location. XBT and CTD observations.

23 Sept 1100 Arrive Woods Hole
Off load

Tabulated Information:

a. Days at sea

Leg I
Leg II

5 days
8 days

MANDAYS

13 $2 \times 5 = 10$
 $7 \times 8 = 56$
66

MANDAYS

~~10 + 56 = 66~~

USGS mandays
 $10 + 40 = 50$

b. Number of hydrographic stations

Leg I
XBT

65

XBT 130

Leg II
XBT
CTD

114
65
49

CTD 49
179

c. Instrumentation recovered

- Mooring 128 (3 current meters)
(Sta. A, Georges Bank 40°51.2'N 67°24.2'W)
- Mooring 129 (tripod)
(Sta. B, mid-Atlantic 38°43.5'N 73°37.5'W)
- Mooring 130 (tripod)
(North side Georges Bank 41°59.0'N 67°47.0'W)

4. Mooring 131 (tripod)
(Sta. C. mid-Atlantic 38°35.7'N 73°26.2'W)
5. Mooring 132 (tripod)
(Sta. A. Georges Bank 40°51.2'N 67°24.2'W)
6. Mooring 133 (2 current meters w/transmissometer)
(Sta. B, mid-Atlantic 38°43.5'N 73°37.5'W)
7. Mooring 134 (tripod)
(Sta. B, South Atlantic 31°05.3'N 80°28.8'W)

d. Instrumentation deployed

1. Mooring 133 (tripod)
(Sta. B, mid-Atlantic 38°43.5'N 73°37.5'W)
2. Mooring 136 (tripod)
(Sta. A, Georges Bank 40°51.2'N 67°24.4'W)
3. Mooring 137 (2 current meters)
(Sta. A, Georges Bank 40°51.2'N 67°24.2'W)

4. EG & G Moorings -

- 2 subsurface current moorings
- 2 surface markers

Preliminary data analysis. engineering problems:

Most of the tripod and current meter data recovered on the ADVANCE II cruise has been decoded. Several problems were encountered:

1. The current meter failed on several tripods (Mooring 129, 130, 132). Investigation suggests that the magnetic pickup switch (reed switch) flooded. We are investigating several ways to correct this problem.
2. Biologic growth on the camera lense on the tripod deployed off Georgia was unacceptable within one month. Some chemical or mechanical means must be found to maintain a clean lense for 2-3 months. More frequent tripod turnarounds would be costly, and not considered a viable alternative.
3. The pressure sensor was not properly plugged into the data recoding unit on the tripod mooring off Georgia; there is no pressure data from that deployment. Transmissometer failed on launch.

The current meters (VACM's) modified to record light transmission have not been decoded. Slight biological growth occurred on the prism of the instruments.

Two AMF releases were found extremely difficult to enable. One unit released without sending a release command. The recovery floats on the tripod occasionally do not freely release; a larger float may be required to provide additional buoyancy. Engineering tests with a larger float will be conducted prior to the next deployments.

The CTD hydrographic data has not been decoded.

Ship adequacy:

The R/V ADVANCE II was found a marginal vessel for conducting safe mooring operations. Some equipment may have been damaged due to poor ship handling. A few example problems:

1. At the tripod site off Georgia, the tripod recovery line parted when the ship did not back down to keep tension off the line. The tripod was recovered by Oceanographic Technician Malpass by locating the tripod recovery line underwater with scuba gear. This was the first recovery line parted in 10 tripod deployments.
2. In general fantail to bridge communication was poor. Engine commands had to be relayed from stern to bridge via radio, from bridge to watchstander, from watchstander to telegraph, and from telegraph to engine room. This made maneuvering awkward.
3. On Georges Bank replacing and resetting the surface buoys was disastrous. Two buoys were hit by mistake while making approaches to other buoys. In deployment of one buoy, the mooring chain was wrapped in the port screw when the ship was turned to starboard to tow the buoy to position. Oceanographic Tech. Malpass freed the chain.

4. In recovering instrumentation, the ship generally was not brought to the gear into the wind, but was allowed to drift downwind on top of the instrumentation. This seemed the only sure way the ship could come alongside, but was extremely awkward since the ship then often drifted over the instrumentation.
5. The third mate relied exclusively on an impressive Loran C navigation unit for course information. To operate, latitude and longitude of a desired station were entered into the unit, and the machine calculated and displayed course and range to the desired coordinates. The scientific party provided latitude and longitude of stations to the bridge. On one occasion, two almost parallel Loran C stations were used for navigation which yielded an inaccurate position fix. The resulting course was 90° from the correct heading. The scientific crew notified the bridge of an incorrect course, but the bridge could not understand the problem. Such total reliance on navigation aids is considered dangerous.
6. ADVANCE II discharges exhaust at the waterline. The fantail and the hydrographic platform were often engulfed in diesel smoke. This made working conditions less than pleasant.

Much of the mooring work accomplished on the ADVANCE II cruise was extremely difficult. The surface buoys and tripods are heavy and maneuvering between the surface markers in strong winds and currents is certainly difficult. However, this chief scientist has worked with more capable vessels.

The hydrographic station work was very adequate. ADVANCE II rode extremely well in rough weather.

Appendices

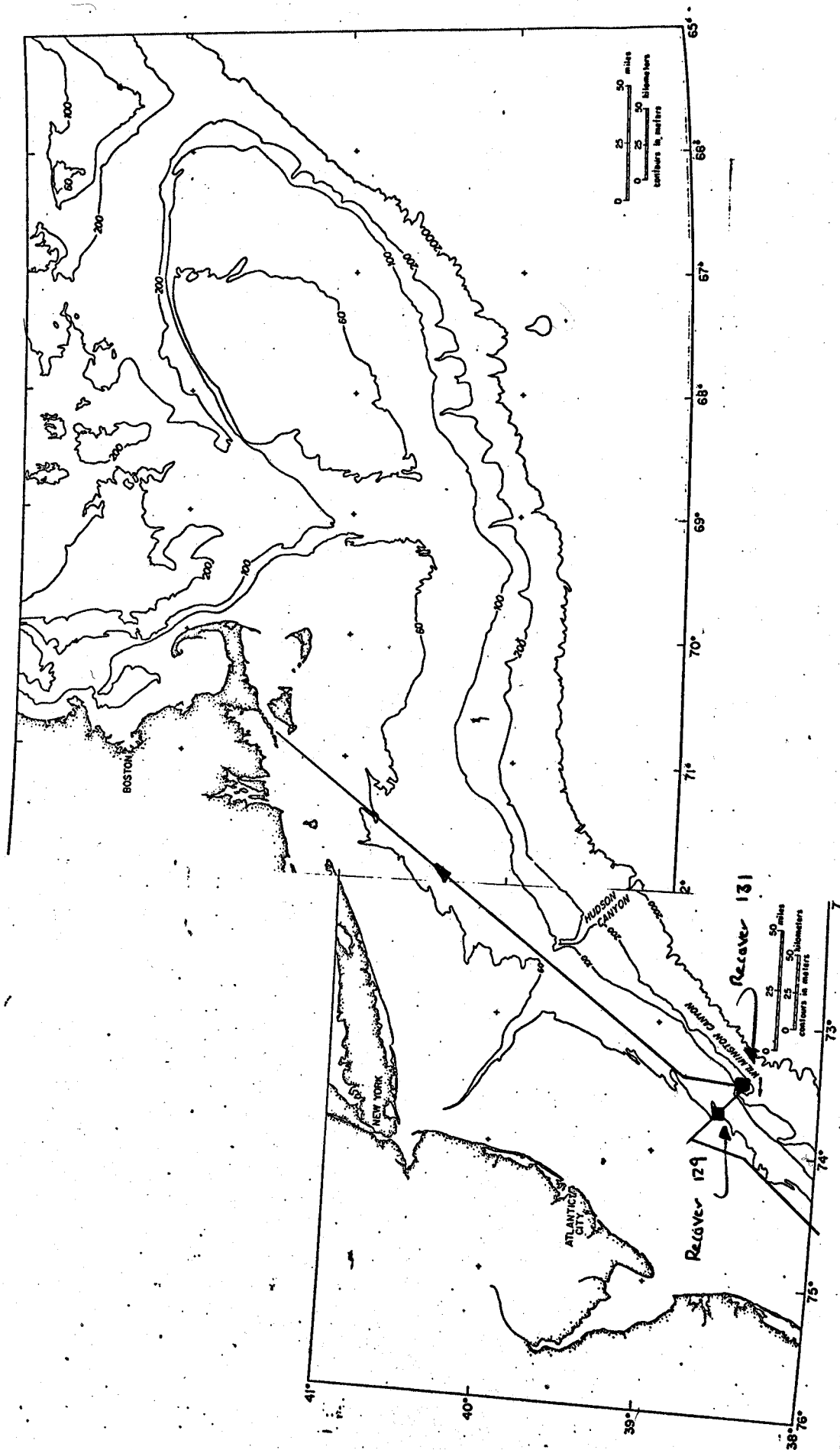


Fig. 2

Approximate cruise track and mooring locations, RV ADVANCE II LEG II, 15-23 Sept., 1977 (XBT and CTD station not shown but approx. every 10-15 nm).

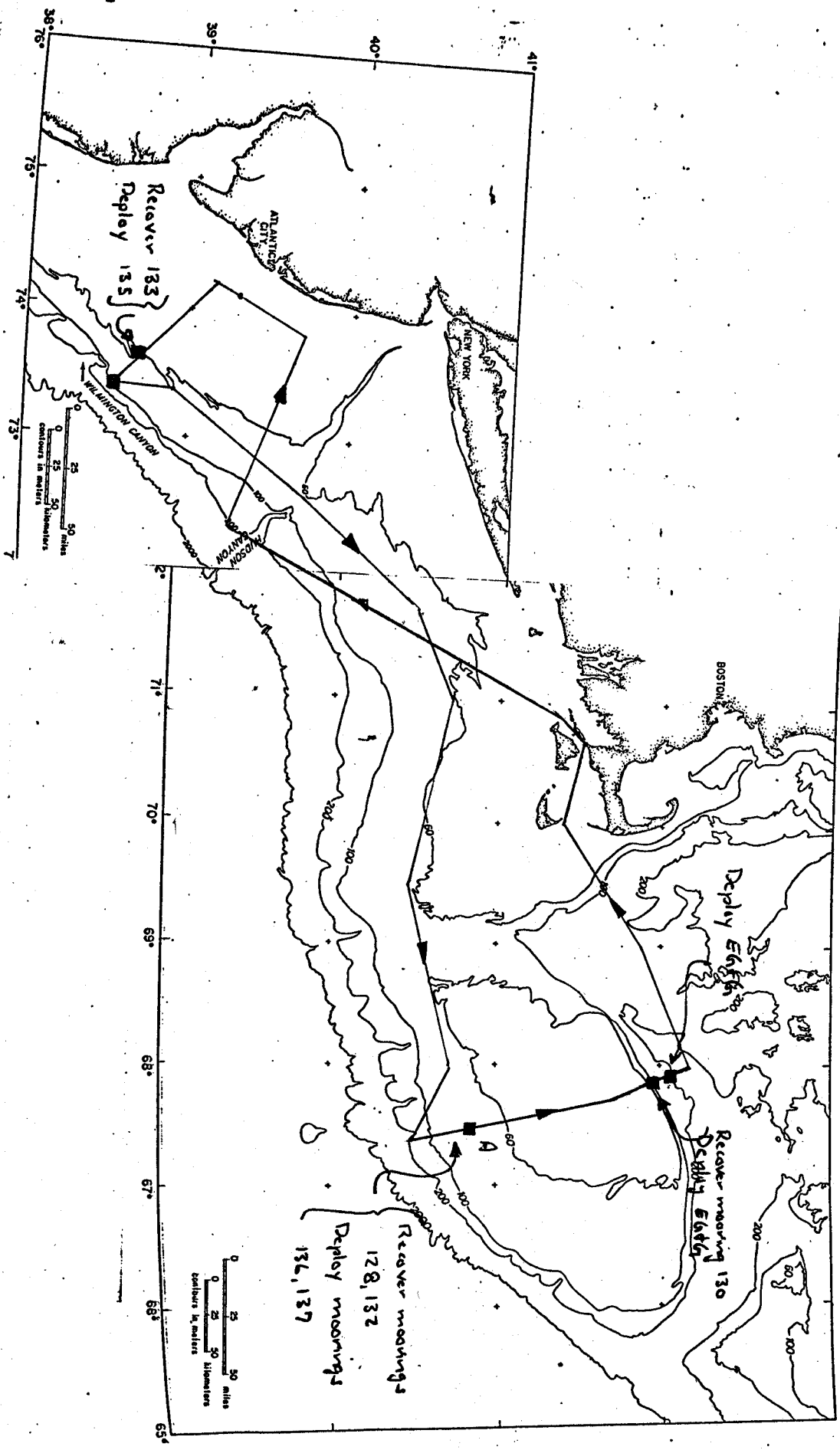


Fig. 3

Approximate cruise track and mooring locations, RV ADVANCE II Leg II, 15-23 Sept., 1977
(XBT and CTD stations not shown but approx every 10-15 nm).

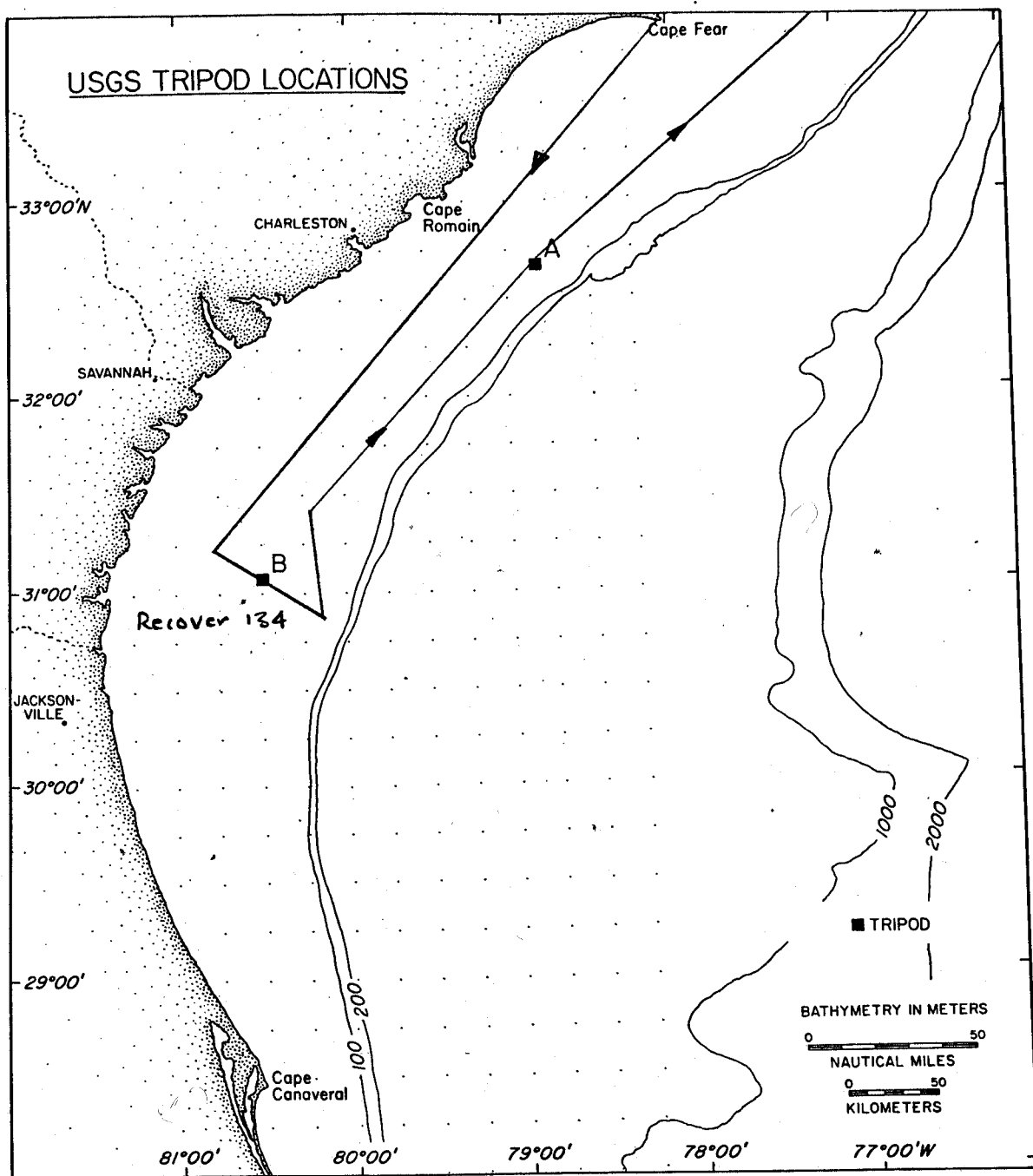


Fig. 1

Approximate cruise track and mooring locations, RV ADVANCE II
 LEG I, 7-13 Sept., 1977 (XBT locations not shown, approx.
 every 20 nm).

Station procedure:

Two types of water profiling and sampling stations were conducted on ADVANCE II.

a. Expendable Bathythermograph Station (XBT).

Profiles of water temperature were obtained while underway using XBT's. At all XBT stations, a surface water sample was taken for surface salinity. Salinity bottles were rinsed at least twice prior to filling. [T4 (460m), T7 (760m), and T10 (220m) probes were used depending on water depth].

b. Conductivity - temperature - depth station (CTD)

Profiles of water temperature and conductivity were obtained using a Plessey 9040 CTD. At all CTD stations, a surface water sample was taken for source salinity. Also at most stations, a Nansen bottle with reversing thermometers was used to obtain accurate temperature and conductivity pairs for CTD calibration.

Station procedures was as follows:

1. Read Loran °C
2. Place CTD fish in water, lower to approximately three meters. Read frequency output of CTD.
3. Attach Nansen bottle with reversing thermometer to wire (bottle approximately five meters above fish sensors).
4. Lower fish to desired depth (to within 5 m of bottom where possible). Read frequency output of CTD.
5. Raise fish to desired level for calibration, generally a well mixed place in the water column, usually near bottom.
6. Allow fish and Nansen bottle to "soak" for 5 minutes. Trip bottle with messenger.
7. Raise fish 5 m and read frequency output of fish (fish at level of Nansen bottle when tripped).
8. Raise fish to 3 m surface, remove Nansen bottle, read frequency output of CTD.
9. Remove fish from water.

10. Obtain surface salinity sample. Rinse sample bottle at least twice.
11. Let Nansen bottle thermometers equilibrate at least 15 minutes. Read reversing thermometer twice. Draw water sample, rinsing sample bottle at least twice.

The XBT and CTD water sampling and profiling stations were numbered consecutively (Table 1). Typically, XBT and CTD stations were alternated to obtain maximum information on the temperature structure (every 5 miles), with sufficient resolution of the salinity and density field (10 mi.). The XBT and CTD analog traces were used to determine depth of each isotherm. A plot of the temperature field was made aboard ship to aid in selecting sampling locations.

Station List

ADVANCE II 9/15/77 - 9/23/77

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity
1	31°13.9	80°43.7	22	✓		✓
2	31°10.5	80°38.2	25.5	✓		✓
3	31°07.9	80°33.7	31	✓		✓
4	31°05.4	80°29.6	31	✓		✓
5	31°03.4	80°24.4	35	✓		
6	31°01.3	80°19.1	40	✓		✓
7	30°57.6	80°14.2	44	✓		✓
8	30°54.2	80°09.8	46	✓		✓
9	31°18.9	80°17.5	40	✓		✓
10	31°42.7	79°56.0	41	✓		✓
11	31°54.7	79°49.1	40	✓		✓
12	32°06.75	79°34.8	40	✓		✓
13	32°15.75	79°20.7	42	✓		✓
14	32°23.6	79°06.5	44	✓		✓
15	32°32.3	78°50.6	44	✓		✓
16	32°41.8	78°36.2	40	✓		✓
17	32°50.8	78°21.5	41	✓		✓
18	33°00.6	78°06.5	41	✓		✓
19	33°07.7	77°53.2	44	✓		✓
20	33°16.2	77°38.25	42	✓		✓
21	33°19.8	77°32.0	35	✓		✓
22	33°26.8	77°23.5	35	✓		✓

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity	Temp. Listed w/Salinity	XSTD
23	33°38.2	77°10.2	27	✓		✓		
24	33°46.7	76°57.7	35	✓		✓		
25	33°58.4	76°44.7	40	✓		✓		
26	34°09.8	76°32.9	37	✓		✓		
27	34°23.4	76°16.8	33	✓		✓		
28	34°33.3	76°03.7	40	✓		✓		
29	34°40.5	75°55.4	41	✓		✓		
30	34°50.4	75°41.6	44	✓		✓		
31	34°59.0	75°26.6	51	✓		✓		
32	35°04.6	75°21.0	40	✓		✓		
33	35°09.0	75°13.6	28	✓		✓		
34	35°09.7	75°07.2	29	✓		✓		
35	35°18.6	74°59.7	62	✓		✓		
36	35°25.4	74°56.2	44	✓		✓		
37	35°32.4	74°51.7	55	✓		✓		
38	35°45.4	74°57.5	61	✓		✓		
39	36°08.0	75°04.3	73	✓		✓		
40	36°10.0	74°55.2	69	✓		✓		
41	36°15.5	74°53.5	62	✓		✓		
42	36°32.6	74°49.9	51	✓		✓		
43	36°44.8	74°47.9	58	✓		✓		

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity	Temp. Listed w/Salinity	XSTD
44	37°07.0	74°48.0	66	✓		✓		
45	37°14.6	74°45.5	62	✓		✓		
46	37°27.9	74°36.9	60	✓		✓		
47	37°43.1	74°27.1	63	✓		✓		
48	37°54.1	74°19.6	66	✓		✓		
49	38°07.0	74°11.1	62	✓		✓		
50	38°18.7	74°01.5	66	✓		✓		
51	38°31.4	73°50.5	62	✓		✓		
52	38°49.5	73°47.7	46	✓		✓		
53	38°46.1	73°42.3	47	✓		✓		
54	38°43.6	73°37.7	54	✓		✓		
55	38°40.2	73°32.7	62	✓		✓		
56	38°35.9	73°36.5	82	✓		✓		
57	38°32.3	73°21.7		✓		✓		
58	38°28.9	73°16.6	474	✓		✓		
59	38°56.5	73°24.9	65	✓		✓		
60	39°09.3	73°13.5	65	✓		✓		
61	39°21.7	73°00.0	66	✓		✓		
62	39°32.45	72°51.8	62	✓		✓		
63	39°44.4	72°41.3	69	✓		✓		
64	40°00.6	72°27.8	71	✓		✓		
65	40°14.0	70°18.2	62	✓		✓		

Station List

ADVANCE II 9/15/77 - 9/23/77

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity	XSTD
1	41°20.7	70°55.8		✓		✓	
2	41°11.6	70°02.6	33	✓		✓	
3	41°06.0	71°06.6		✓		✓	
4	40°59.5	71°10.5	55		✓	✓	
5	40°52.2	71°15.1	53	✓		✓	
6	40°45.6	71°19.7	64		✓	✓	
7	40°38.4	71°24.4	67	✓		✓	
8	40°31.0	71°29.5	75		✓	✓	
9	40°25.2	71°33.3	76	✓		✓	
10	40°18.0	71°38.5	86		✓	✓	
11	40°10.9	71°42.9	86	✓		✓	
12	40°03.5	71°47.2	91		✓	✓	
13	39°56.7	71°52.1	110	✓		✓	
14	39°51.4	71°57.2	135		✓	✓	
15	39°35.6	72°10.8		✓		✓	
16	39°31.0	72°14.0		✓		✓	
17	39°29.0	72°16.0		✓		✓	
18	39°27.1	72°18.4		✓		✓	
19	39°23.7	72°21.4		✓		✓	
20	39°19.3	72°35.3	151		✓	✓	
21	39°20.4	72°31.0	138	✓		✓	
22	39°22.2	72°38.0	117	✓		✓	
23	39°23.8	72°44.1	80		✓	✓	

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity	Temp. Listed w/Salinity	XSTD
24	39°29.6	72°52.8	75	✓		✓		
25	39°27.4	73°01.4	66		✓	✓		
26	39°29.6	73°08.6	46	✓		✓		
27	39°31.5	73°18.4	36.5		✓	✓		
28	39°34.0	73°27.5	39	✓		✓		
29	39°35.5	73°37.2	38	✓		✓		
30	39°38.1	73°46.8	27		✓	✓		
31	39°27.5	73°53.9		✓		✓		
32	39°16.6	74°02.3	29	✓		✓		
33	39°07.0	74°09.0	31		✓	✓		
34	39°03.6	74°04.7	38	✓		✓		
35	39°00.3	74°00.4	41		✓	✓		
36	38°56.3	73°55.6	40	✓		✓		
37	38°52.8	73°50.6	46		✓	✓		
38	38°49.8	73°45.2	53	✓		✓		
39	38°46.0	73°41.6	56.5		✓	✓		
40	38°43.0	73°38.0	64		✓	✓		
41	38°39.9	73°33.2	68		✓	✓		
42	38°36.7	73°28.4	79	✓		✓		
43	38°33.3	73°23.9	83		✓	✓		
44	38°29.3	73°19.7	157	✓		✓		
45	38°56.4	73°27.1	60		✓	✓		
46	39°08.7	73°15.8	66	✓		✓		
47	39°20.6	73°05.4	68		✓			
48	39°32.7	72°52.9	62		✓	✓		
49	39°45.5	72°41.5	50		✓	✓		

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity	Temp. Listed w/Salinity	XSTD
50	39°59.4	72°26.8	69	✓		✓		
51	40°12.9	72°13.3	66		✓	✓		
52	40°22.3	71°58.4	69	✓		✓		
53	40°33.5	71°40.8	77		✓	✓		
54	40°37.9	71°22.0	67	✓		✓		
55	40°42.0	71°00.0	63		✓	✓		
56	40°40.4	70°39.4		✓		✓		
57	40°38.4	70°21.0	57.5		✓	✓		
58	40°35.7	70°02.3	60	✓		✓		
59	40°33.0	69°43.2	69		✓	✓		
59A	40°33.0	69°43.2	69					✓
60	40°30.1	69°29.4	64		✓	✓		
61	40°32.0	69°19.8		✓		✓		
62	40°33.5	69°10.0	71		✓	✓		
63	40°35.2	69°00.7	75	✓		✓		
64	40°36.6	68°51.2	71		✓	✓		
65	40°38.3	69°40.0	63	✓		✓		
66	40°38.6	68°32.5	64		✓	✓		
67	40°42.0	68°22.9	66	✓		✓		
68	40°45.9	68°12.6	62		✓	✓		
69	40°49.9	68°04.0	69	✓		✓		
70	40°52.5	67°54.0	65		✓	✓		
70A	40°52.5	67°54.0	65					✓
71	40°45.4	67°42.0	73	✓		✓		
72	40°38.0	67°31.4	77	✓		✓		
73	40°31.4	67°20.5	77		✓	✓		

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity	Temp. Listed w/Salinity	XSTD
74	40°37.3	67°21.5	56	✓		✓		
75	40°42.4	67°23.6	99		✓	✓		
76	40°47.0	67°24.7		✓		✓		
77	40°51.2	67°24.5	85		✓	✓		
78	40°51.5	67°26.1	86		✓	✓		
79	40°55.5	67°26.5		✓		✓		
80	41°00.8	67°28.0	71		✓	✓		
81	41°05.5	67°28.8	59	✓				
82	41°09.5	67°30.0	55		✓	✓		
83	41°16.1	67°32.0	46	✓		✓		
84	41°23.4	67°33.6	39	✓		✓		
85	41°30.5	67°35.4	41	✓		✓		
86	41°46.5	67°37.2	60	✓		✓		
87	41°43.2	67°38.9		✓		✓		
88	41°51.6	67°40.6	37		✓	✓		
89	41°54.6	67°44.0	42		✓	✓		
90	41°57.0	67°45.5	53	✓		✓		
91	42°00.3	67°48.5	103		✓			
92	42°09.0	67°49.7		✓		✓		
93	41°58.9	67°47.1	91		✓	✓		
94	42°01.6	67°49.6		✓		✓		
95	42°01.5	67°50.4		✓		✓		
96	42°02.7	67°52.2	190	✓		✓		
97	42°03	67°51	197		✓		Loran questionable	
98	42°07.5	67°55.0	225		✓	✓		

Station	Latitude	Longitude	Depth (m)	XBT	CTD	Surf. Salinity	XSTD
99	42°04.4	68°08.3	230	✓		✓	
100	42°01.8	68°21.7	186	✓		✓	
101	41°59.2	68°34.4	173	✓		✓	
102	41°56.6	68°47.5	145	✓		✓	
103	41°54.5	69°01.0	180	✓		✓	
104	41°47.4	69°11.4	201	✓		✓	
105	41°42.4	69°18.6	198		✓	✓	
106	41°40.1	69°21.2	181	✓		✓	
107	41°37.0	69°26.4	108		✓	✓	
108	41°35.0	69°29.3	69.5	✓		✓	
109	41°33.5	69°31.9	53		✓	✓	
110	41°30.5	69°36.1	33		✓	✓	
111	41°26.7	69°42.4		✓		✓	
112	40°25.2	69°49.0	16.5	✓		✓	
113	41°24.2	69°52.8	22	✓		✓	
114	41°26.0	70°00		✓		✓	
TOTALS				128	48	171	2